

North American Drought Monitor – November 2004

Canada: Precipitation in British Columbia during the month of November was generally average or better except in the southeast and northeast areas. Groundwater levels remained at below average levels in the central Okanagan Valley and average or above average in observation wells reported in other southern, and the central, regions of the province. Severe (D2) drought to abnormally dry conditions continue to exist in the Peace River region.

Water storage in the major hydroelectric and irrigation reservoirs in Alberta was normal or above normal. Snow accumulations in the eastern Rocky Mountains were below average for this time of the year. The mountain snowpack is an important source of water supply to reservoirs in the spring. On average, the accumulation of snow at this time of the year accounts for nearly one-fifth of the seasonal total.

Precipitation in the northern prairie provinces and much of the territories remained below average. Severe (D2) drought conditions continued to impact the hydrologic conditions in northern Alberta and northern Saskatchewan. Above average precipitation in northern Manitoba improved the conditions in that region to moderate (D1) with hydrologic impacts. Much of southeastern Saskatchewan and parts of the northern and Interlake agricultural regions of Manitoba experienced abnormally dry weather since September 1.

Approximately half the stations in southern Ontario reported below 60 percent of the average expected precipitation for November. Virtually all southern and central locations reported below 80 percent of average precipitation in southern and central Ontario for the period September 1 to November 30. Seven Conservation Authorities in southern Ontario (http://www.conservation-ontario.on.ca/profile/map_list.htm) continued to be in a low flow condition, including Ausable Bayfield, Catfish Creek, Grand River, Hamilton Region, Long Point, Maitland and St Clair. All hydrometric stations reported flows above the monthly minimum but only the Mississippi River at Appleton reported flows above the monthly mean.

There were no drought related conditions reported in Quebec.

In Atlantic Canada precipitation was near average in most areas except in southern New Brunswick where conditions were rated abnormally dry.

United States: November was dry across the Pacific Northwest, northern Rockies, northern Plains, and most of Florida. But much of the southwestern U.S. drought region was wetter than normal for the third month in a row, resulting in continued improvement to the drought conditions in some areas. The November precipitation pattern at the primary weather stations in Alaska was mixed, with soil moisture conditions remaining drier than normal across east-central Alaska. In Hawaii, most of the primary stations in the southern islands were drier than normal, while the northern islands were mostly

wetter than normal. The pattern in Puerto Rico was drier than normal in the southwest part of the island and wetter than normal in the northeast.

Long-term moisture deficits persisted in many areas. Much of the central and northern Rockies were dry at the 9 to 24 month timescales. Many Alaska stations were drier than normal at the 12 month timescale. Severe moisture deficits were evident at the 36 to 60 month timescales across much of the West into the northern High Plains and central Plains.

A series of winter storms, beginning in September and continuing through November, brought abundant precipitation and increasing mountain snowpack to the southwestern U.S. Snow water content in the November 30 snowpacks ranged from near normal in western Colorado and northern Nevada, to over 200 percent of normal in Arizona and Utah, and over 350 percent of normal in east-central Nevada. D3 and D2 were pulled back in these states, while D1 was chipped away to reveal a hole of D0 from southwest Utah into east-central Nevada. In spite of these improving conditions, reservoir levels in most of the western states continued well below seasonal normals, and monthly averaged streamflow levels were below seasonal norms across parts of the West, both as computed by models and based on USGS observations. The recent precipitation has greatly boosted topsoil moisture and range/pasture conditions, but exceptional future wet season(s) and mountain snow pack(s) are still required to gradually fill the reservoirs and erase long-term hydrological drought.

Snowpacks in the Pacific Northwest, northern Rockies, and east slopes of the Rockies were significantly below average. End-of-month and monthly averaged soil moisture conditions were drier than normal across parts of Wyoming, Montana, and the Pacific Northwest, based on model computations by the NOAA Climate Prediction Center. D0 was expanded in Washington state, and a spot of D1 was introduced into northwestern Montana.

Above-normal precipitation this month along the Mississippi Valley to the southern Great Lakes resulted in a contraction of D0 areas. But longer-term moisture deficits, below-average monthly streamflow, and drier-than-average soil moisture conditions (based on model computations by the NOAA Climate Prediction Center and Midwest Regional Climate Center) kept some D0 across parts of Iowa, Wisconsin, and Michigan.

Mexico: The general precipitation pattern for Mexico during November consisted of above normal rainfall across the north central states of Chihuahua, Coahuila, Durango, and sections of Sinaloa with below normal amounts across much of the central, southern, and eastern states as well as the northwest (Sonora and Baja California peninsula). A few pockets of above normal rainfall occurred in the south. November modeled soil moisture conditions, as computed by the NOAA Climate Prediction Center, indicated drier-than-normal soils from the Yucatan peninsula westward to the Pacific coast at Oaxaca, and along the coast from Michoacan to Sinaloa.

Portions of coastal Guerrero have been drier than normal since July. Three of the last four months were drier than normal in central Veracruz, where agriculture was beginning to be affected. Dry conditions during recent months combined with longer-term dryness to raise concerns about potential impacts on the power generating system in the Chiapas and Tabasco region.

On the November North America Drought Monitor map, D0 was expanded into Michoacan, Mexico State, southern Nayarit, and eastern Puebla. D1 was added to northwest Guerrero and central Veracruz. Localized wet conditions resulted in the contraction of D0 in western Oaxaca, the eastward movement of the D1 in eastern Oaxaca, and the contraction of D1 in western Tabasco and southeastern Chiapas. AH impact designators were introduced in the Guerrero, Veracruz, and northern Chiapas and Tabasco D1 areas.